DOCUMENT RESUME

ED 162 098 08 CE 018 213

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TITLE	Career Development Program. Akron Public Schools, Akron, Ohio.
INSTITUTION	American Institutes for Research in the Behavioral Sciences, Palo Alto, Calif.
SPONS AGENCY	Office of Career Education (DHEW/OE), Washington, D.C.; Office of Education (DHEW), Washington, D.C. Office of Planning, Budgeting, and Evaluation.
REPORT NO	AIR-66700-6/78-TR2(1)
PUB DATE	30 Jun 78
CONTRACT	300-77-0303
NOTE	52p.; For related documents see CE 018 212-223 and CE 018 823
EDRS PRICE	MF-$0.83 HC-$3.50 Plus Postage.
DESCRIPTORS	*Career Awareness; Career Development; *Career Education; Community Involvement; *Decision Making Skills; Demonstration Projects; Educational Objectives; Elementary Secondary Education; Evaluation Criteria; *Evaluation Methods; Faculty Development; Parent Participation; Program Administration; Program Descriptions; Program Development; *Program Effectiveness; Program Evaluation; Resource Materials; School Community Relationship; *Self Concept
IDENTIFIERS	Akron Public Schools CE; Education Amendments 1974; Ohio (Akron)

ABSTRACT

This description of career education activities in Akron (Ohio) Public Schools was prepared as part of a study conducted to identify evaluated, exemplary career education activities which represent the best of the current career education programs and practices referred to in Public Law 93-380. (See CE 018 212 for the final report of this study.) This document describes one of the ten projects that were selected from among 250 projects submitted. It presents one locale's way of successfully implementing a career education activity, the results of which are educationally significant. Each of the ten projects are reported in a similar format, including the following descriptions: project overview; program development; materials and activities; parent and community involvement; staffing and management; costs; evidence of effectiveness; and conclusions. In this report of the Akron Public Schools Career Development Program, the ultimate goal is stated as follows: to increase students' self-awareness and self-esteem, knowledge of the world of work, and skills in decision making. The primary subjects are identified as primarily students in grades K-10, and the evaluation design is described as a posttest-only design using equal numbers of randomly selected program and non-program students. (BM)

ED162098

CAREER DEVELOPMENT PROGRAM

Akron Public Schools

Akron, Ohio

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American Institutes for Research

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Akron Public Schools

30 June 1978

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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CE 018 315

FOREWORD

This activity description was prepared as part of a study conducted by the American Institutes for Research (AIR) under contract No. 300-77-0303 to the U.S. Office of Education. The purposes of the study were to identify evaluated, exemplary career education activities; to recommend identified activities to the Joint Dissemination Review Panel (JDRP) of the Education Division, Department of Health, Education, and Welfare; to prepare descriptions of identified activities; and to develop a handbook with six models for evaluating career education activities.

The criteria established for screening activities in this study intentionally limited choices to those whose evaluation reports presented evidence of effectiveness. Close attention was given to the soundness of evidence in evaluation reports. A minimum requirement for this evidence of effectiveness was that some comparison standard be provided so that gains made by the students participating in the activity could be attributed to the impact of the activity. After confidence in the evidence of effectiveness was established, further criteria were applied. These criteria included consistent relationships between a well-planned assessment of needs, a statement of desired student outcomes, the selection of instruments, and the procedures used in data collection, management, and analysis.

This document describes one of ten projects that was selected from among 250 submitted. It presents one locale's way of successfully implementing a career education activity, the results of which are educationally significant. Although the description reflects an activity developed in response to local needs, other school districts with similar needs may wish to adapt parts or all of it according to their own circumstances and philosophy.

We are especially grateful to the staff of the Akron Career Development Program and to the many school staff members who generously gave their time to answer questions from AIR site visitors. They extended a special kind of hospitality and spared no amount of effort to provide the information necessary to prepare this description. They made it possible for the site visitors to see the program in action, as well as to understand the philosophy and strategies that underlie its operations.

Although some early materials had instances of sex-role stereotyping, current revisions are correcting these problems. In addition, a number of inservice workshops have focused on the topic of social fairness for all segments of the population.

TABLE OF CONTENTS

	Page
PROJECT OVERVIEW	1
PROJECT DESCRIPTION	2
Program Development	2
Program Setting	2
The Akron Career Development Program	3
The Key to Akron's Program: Community-School Collaboration	4
Program Goals: What are Students Supposed to Learn	5
Program Emphasis and Philosophy	6
What Were the Central Steps in Planning the Program?	6
Materials and Activities	7
What Happens at the K-6 Level?	8
What Happens at the 7-8 Level?	9
What Happens at the 9-10 Level?	9
What Careers Fit What Subjects?	10
What Physical Facilities Are Needed?	11
What Are Some Key Materials Used?	12
Parent and Community Involvement	16
What Kinds of Things Has the Community Done?	19
Measures of Participation	19
Staffing and Management	19
Staffing	19
The Program Director	19
The Career Education Coordinators	20
The Support Staff	21
Management Strategies	21
Inservice Training	22
Costs	24
Sources and Levels of Funding	24
Evidence of Effectiveness	25
The Evaluation of the Program	25
The Tests	25
Evaluation	26
Results in the Cognitive Domain	27
Results in the Affective Domain	28
Test Performance of Different Types of Students	29

Page

What the Results Mean 29

Favorable Review by Joint Dissemination Review Panel 29

Conclusion 30

APPENDICES

Appendix A: Career Education Learner Outcomes K-10

Appendix B: Getting Off the Ground (The Program Planning Process)

PROJECT OVERVIEW

TITLE & LOCATION: Career Development Program
Office of Career Education Programs
65 Steiner Avenue
Akron, Ohio 44301

TYPE: Infusion

PROJECT DIRECTOR: Nicholas J. Topougis
Ph: (216) 434-3404

SETTING: This project focuses on students in grades K-10 and offers some services to students in grades 11 and 12 as well. The district contains 47 elementary schools, 10 junior high schools, and nine senior high schools, serving about 50,000 students in a total population of over 275,000. The student population served in 1975-76 consisted of approximately equal numbers of white and non-white students. Akron is a mostly urbanized area with manufacturing, particularly of rubber products, as its major type of employment.

STAFF: One full-time director coordinates the efforts of four elementary level career coordinators and four secondary level career coordinators. A full-time secretary and three part-time paraprofessionals complete the staff.

GOALS: The goals of Akron's Career Development Program are to increase students' self-awareness and self-esteem, knowledge of the world of work, and skills in decision-making. Seven areas of objectives have been developed based on these goals: the self; the individual and the environment; education and training; the world of work; economics; employability and work adjustment; and decision-making.

EVALUATION DESIGN: Equal numbers of randomly selected program and non-program students were selected in the spring of 1976 for testing on a posttest-only basis. Program students' performance was compared with that of non-program students.

MATERIALS: Available for dissemination are: (1) Flight Plan: Toward a Career Choice -- School-Community Collaboration, an implementation manual; (2) curriculum guides for the K-6 levels; and (3) other selected materials.

COST: The major program costs are the director's, career coordinators', and secretary's salaries.

PROJECT DESCRIPTION

Career education is a "big deal" in the State of Ohio. Since 1968, well before Commissioner of Education Sidney Marland officially christened the movement as career education, Ohio state and local educators have been putting effort, money, and time into preparing their students for the world of work.

The schools in the City of Akron have been among the state's leaders in relating learning to living. With unflagging determination and enthusiasm, local educators and community members have spread the philosophy and techniques of career education into more and more classrooms each year since 1971. The results of their efforts offer any interested school district an adaptable, effective, exciting model which has proven that it works.

PROGRAM DEVELOPMENT

The Akron Career Development Program formally began in the 1971-72 school year, with funding from district, state, and federal (Vocational Education Act) sources.

The approach to career education utilized in Akron is known as infusion, or the continual demonstration of the relationships between school subjects and any and all aspects of the world of work. This approach is not so much a change in curriculum content as in the focus with which material is presented. Almost any subject at any grade level can be approached as a usable set of skills in one job or another, and this is precisely what infusion is all about.

The infusion approach does not focus on short-term, curriculum-specific goals; rather, it focuses on incremental increases in students' self-awareness, career knowledge, and skills in decision-making, so that by the time they leave school they will have developed a solid basis for choosing a satisfying career.

Program Setting

Known as the Rubber Capitol of the World, Akron is the county seat of Summit County. A major college center in the northeastern part of the state, the city is 35 miles south of Cleveland, another important center of learning. The total population of Akron is 275,425; these are divided into 91,593 households. When surveyed in 1970, Akron, Ohio had 104,825 persons employed. Of these, 40,219 worked in manufacturing. Durable goods were produced by 14,791 and non-durable goods by 25,428 people. Manufacturing establishments were the primary

employers in the Akron area, and business, educational, and governmental services were second. Professional service positions supplied 28,388 paychecks. Wholesale and retail trade occupations provided work for 21,278 citizens; therefore, this industry was the third largest source of employment in the area. Transportation, utilities, and communication enterprises were responsible for 6,851, construction 3,828, finance, insurance, and real estate 3,799, and agriculture and mining, 512 salaries. This pattern of employment has strongly influenced the particular careers emphasized in the Akron program; other districts adopting Akron's model would need to tailor their programs to their own settings.

The Akron school system consists of 47 elementary schools, 10 junior high and nine senior high schools. Based on a count from September 1975, the enrollment in the public school system was 48,415. Classes averaging 28.5 pupils were served by a staff of 2,500. Through 1974-75, the total per-pupil expenditure was $1,182.61.

Innovative programs are common to the Akron Public Schools. New approaches in nongraded student performance evaluation, individually guided education, and team teaching are being implemented. For children with learning impediments, an early identification program has been established. One elementary school features the open classroom concept and a specially designed wing for orthopedically handicapped students.

The Akron Career Development Program

Teachers, of course, have the most contact with students. Community members have the most contact with careers. What brings them together is the district-level Career Development Program staff. This group, which began officially functioning in 1971, consists of a program director and eight career education program coordinators, plus a support staff. The coordinators work directly in the schools; their role is to facilitate in all possible ways the career-related learning of students. They are the experts on media, materials, and community resources, and also the enthusiasts who spread the word about career education and its possibilities.

Career education in Ohio was initiated in 1970. Following recommendations of a 1968 Governor's Task Force, the Ohio Department of Education's Division of Vocational Education provided leadership and financial support for the initiation of six career education programs in Ohio, including one in Akron. In 1971-72 the Akron Board of Education was involved in an extensive program review. The process involved conducting surveys with educators, parents, and high school students to

determine the improvements needed for development and expansion in vocational education. To the specific questions in the survey regarding the need for career development activities, 7,900 students and 4,570 parents strongly agreed that career planning was essential in the total school program.

The initial thrust within the school system for a K-12 career education program came from two major sources. Initial leadership began with the Child Study and Counseling department; shortly thereafter, the director of Elementary Education assumed leadership in bringing together community representatives to determine program needs, concerns, and direction in developing elementary models. The group represented principals, counselors, teachers, personnel administrators from business and industry, parents, and students. Once initial funds were received for programming, the Akron Area Personnel and Guidance Association, a group composed of representatives from business, industry, community agencies and school counselors, accepted the challenge of providing necessary community resources and direction for the effort.

The Key to Akron's Program: Community-School Collaboration

As is no doubt the case with many school systems, the Career Development Program staff has been fortunate to have the collaboration of a host of community organizations in programs that benefit students. These include medical and health, governmental, recreational, business, parent-teacher, newspaper, and service agencies and institutions.

When the Career Development Program began, it was the beneficiary of this community willingness to collaborate in programs that enhance education. For example, the Akron Area Vocational Guidance Association (AAVGA) served as its first Advisory Committee. In that capacity, AAVGA identified and obtained the services of persons from business, industry, and other community organizations for the first career education inservice training programs.

An organization that has a long history of collaboration with the schools in general, and now with the Career Development Programs as well, is the Akron Regional Development Board (ARDB). Although the ARDB was organized only recently, it was formed by the uniting of two older organizations, the Akron Area Chamber of Commerce and the Area Progress Board.

The Chamber of Commerce began a close relationship with the Akron Board of Education in 1946. At that time, several programs were implemented to assist teachers in becoming aware of manufacturing and business operations in the community. A committee of volunteers was formed to develop programs enabling business people and educators to meet and discuss mutual concerns. Many programs

grew from the work of this group, called the Business and Community Relations Committee.

The ARDB has for a number of years worked closely with the Board of Education to fulfill the scholastic needs of the school district; it analyzes Board of Education levy requests and promotes educational fund-raising efforts. Its Education Work Committee representing business, labor, industry, the Akron Public Schools, and the Akron Board of Education, advises teachers and administrators on how to deal with career-related curriculum problems and represents the basic decision-making body for expanding and improving career collaboration efforts. Their effort enables over 1,000 resource persons to be involved in classrooms on an on-going basis. Organizations including the National Alliance of Businessmen, the American Society for Personnel Administrators, the Building and Construction Trades Council of the Akron area, the Urban League, General Motors, the University of Akron and Kent State University, service clubs, and youth clubs offer students class and field experiences related to a variety of careers.

Program Goals: What Are Students Supposed to Learn?

The Akron program, in collaboration with the Ohio State Department of Education and other Ohio cities, has developed seven goal areas within which they hope to influence student growth. These are:

- The Self -- student attitudes, perceptions and self-evaluation of interests, aptitudes, achievements and values.
- The Individual and the Environment -- how the individual relates to the environment; the role each person plays in the home, school, community and work.
- Education and Training -- learning skills, ideas, and appreciations that the individual needs in order to experience a successful life.
- The World of Work -- work values, the variety and nature of occupations, work families and their interdependence, and methods of studying and classifying occupations.
- Economics -- the individual as both a worker earning income and a consumer spending income; principles of the American economic system and the individual's relation to them.
- Employability and Work Adjustment -- obtaining and holding a job and advancing in a career.
- Decision Making -- learning a process that is necessary to all aspects of living, including the choice of a career.

Program Emphasis and Philosophy

Goal areas are not emphasized equally at all grade levels. Instead, activities at each grade level focus on areas which are judged to be most appropriate and most fundamental for future growth. For instance, at the K-6 level, efforts are aimed at helping students develop positive self-concepts, an awareness and appreciation of many different careers, positive attitudes toward work, and an appreciation of the dignity of all work. The 7-8 program is intended to develop students' skills in evaluating their interests and abilities and recognizing the relevance of occupational characteristics to those interests and abilities. The 9-10 program focuses on helping the students study selected career areas in depth according to their interests, and also on helping them to integrate school subject choices into their overall explorations.

At each level, specific learner outcomes have been formulated within the seven developmental areas. The K-6 level is divided for this purpose into K-3 (elementary) outcomes and 4-6 (intermediate) outcomes. These outcomes are listed in Appendix A.

The main points of the career education philosophy in Akron's program can be described as follows:

> First, career education activities must begin early, because the fundamentals of children's career development begin early, especially their attitudes toward work and their self-esteem.
>
> Second, career education must be infused into the total curriculum instead of being "added on," because the central purpose of career education is to demonstrate the relevance of all learning to the world of work.
>
> Finally, career education must involve parents, community group members, and workers of all types as collaborators with educators, because of the sizable impact these persons may have upon students and the unique information and experiences they can contribute to student career development.

What Were the Central Steps in Planning the Program?

The staff of the Akron Career Development Program has paraphrased Akron's planning process in terms of suggestions for districts wishing to follow their program model. These suggestions are found in their handbook called Flight Plan: Toward a Career Choice, an excellent and fascinating guide for potential adopters. According to the Flight Plan, the following basic steps are advised:

- First, educators and the community must make a serious commitment of time, money, equipment, and personnel to the career education effort.

- Second, a program leader must be found who is knowledgeable, skillful, and committed to change.
- Third, all educational departments in the district must be involved as participants in the collaborative effort and must identify their needs and goals regarding career education.
- Fourth, all school staff members must receive inservice training in career education concepts and techniques.
- Fifth, open lines of communication among school staff members and community members must be established.
- Sixth, community characteristics desirable for successful collaboration must exist or be developed.
- Seventh, direct contact must be made with community leaders to enlist their support of and ideas concerning career education.
- Eighth, community leaders must be trained in how to match their resources to student needs.
- Finally, all people involved in the career education effort must help specify the objectives and outline the program for career education.

The details of these suggestions, excerpted as a whole from the Flight Plan, are found in Appendix B.

MATERIALS AND ACTIVITIES

The program in Akron may be defined as a pattern of career-related activities integrated into all aspects of Akron's K-10 curriculum, increasing in detail and sophistication as students reach higher grade levels. (Partly for reasons of funding, the Ohio Career Development Model upon which Akron's program is based has been developed only for grades K-10.)

The activities used in this project are as varied as the teachers who teach them. First, detailed curriculum guides have been developed by project staff members and teachers for all levels. Second, many commercially developed career education curriculum units and filmstrips are available. Third, field trip sites, speakers, and work sites are available to all teachers and new additions are continually sought. Finally, the career coordinators are always willing to help teachers modify existing activities or develop original activities if the teacher feels that student needs will best be met that way.

The nature of Akron's infusion process makes it impossible to say, "All teachers used these materials or took these field trips." The available materials, speakers, and work sites constitute resources from which teachers and other staff

members can decide on those activities they feel are most appropriate for their students. And, in fact, what is most transportable about the Akron model is the methods by which the Career Development Program Staff went about obtaining these various resources and helping teachers implement them in classrooms, not the resources themselves in many cases.

Since it is impossible to specify activities which all teachers used, a general description of types of activities and some typical examples will be provided instead.

What Happens at the K-6 Level?

In the K-6 curriculum, known as career motivation, the curriculum depends heavily on in-class activities, appropriate texts, and learning materials integrated into the on-going curriculum. At the kindergarten level, teachers generally provide three to four hours a week of exposure to career education activities. In grades 1-6, about twice that time per week is typically used.

As an example, third graders in one elementary school used yarn, glass eyes, pipe cleaners, and glue to make "warm fuzzies" on a classroom assembly line. Inspiration for the project was a story about people who exchanged warm fuzzies as a way of saying, "I like you." Before starting production of the warm fuzzies, the class studied business terms and principles. Other preliminary activities were: (1) field trips to observe assembly-line production and division of labor; (2) a talk by an attorney about starting and operating a corporation; and (3) a talk by a banker about kinds of bank accounts. A corporation was formed, shares of stock were sold at ten cents and a board of directors was elected.

After decisions had been made on the number of jobs performed in the production of warm fuzzies, students applied and were interviewed for the kind of job they preferred. Stockholders met and decisions were made concerning "capital goods" needed (scissors, wire cutters, storage containers, art supplies) and purchase of "raw materials" (yarn, pipe cleaners, glue, glass eyes). Safety rules were written for five production lines, each with a supervisor and quality control person. Prices for different sizes of warm fuzzies were determined after the first "production runs."

Advertising and promotions were devised and carried out. Kinds of sales included: (1) direct marketing to students and teachers; (2) filling out of orders from teachers and from a candy company; and (3) selling through such agents as a neighborhood store, church bazaars, and flea markets. Money received from sales provided two stockholder dividends, which returned not only their original

investment, but also donations to a hospital fund and the school.

This example illustrates an activity which taught the students a great deal about the business world, but at the same time stressed basic academic skills in mathematics and communications, as well as problem solving, decision-making, and group participation skills.

What Happens at the 7-8 Level?

At higher grade levels, time spent on career education is more flexible than in grades K-6, but might typically occupy one day a week. At grade levels 7-8, the career orientation focus calls for students to be exposed to career consultants, work laboratories, and field experiences allowing them to observe semi-skilled to professional occupations. In addition, career orientation activities stress the economic and social values of work, continued self-appraisal in relation to various careers, and development of decision-making skills.

For instance, students in an eighth grade English class visited a publishing company, heard speakers from publishing, printing, and distributing companies, and then published their own magazine. They established policies and areas of coverage, gathered and wrote up material, decided on the layout, and pasted up the final version. The issue was printed and the students distributed it to other classes at no cost.

What Happens at the 9-10 Level?

In grades 9-10, actual career exploration is the focus. Students' areas of career interest, pinpointed in the eighth grade through consultations and interest inventories, are used to help them select relevant academic subjects in the ninth grade, and also to help teachers tailor career experiences to their own students. Films, curriculum units, and resource speakers are supplemented by on-site work exposure. Paid and unpaid work experience is encouraged; for instance, home economics students volunteer their services at local day care and nursing care centers. Field trips to local firms are made, occupying from one hour to a full day or more. Specific company policies on hiring, salary, working conditions, and necessary education are explored. Guidance activities, such as decision-making and values clarification exercises, are brought into the classroom, conducted by the teacher, counselor, and/or career education coordinator.

In the tenth grade, three options are available to students. First is continued career education activities in the regular classroom framework. Second is special "block-time" scheduling into three classes (English, social studies,

and a study hall) in which career exploration is paramount. The daily time block makes feasible larger scale, more intensive career exploration and work exposure experiences. The third is a pre-vocational cluster program offered one period per day for the entire tenth grade year. Students who have tentatively chosen a vocational education training program to pursue in grades 11-12 rotate among five related vocational areas of their selection plus a segment on guidance and self-assessment. In each vocational area they receive an overview of the occupations involved in that area. At the end of the year they confirm their original vocational education choice, choose another area, or decide to enter a non-vocational program.

An example activity at this level was a food services exploration program which was sponsored by the Education Committee of the Akron Area Restaurant Association and other agencies. Based on vocational interest testing, enrollment in home economics classes, and counselor recommendations, career education coordinators identified students interested in food service careers and made transportation and other necessary arrangements. They also prepared students for the experiences by discussing what to look for and kinds of questions to ask workers at the sites to be visited.

Observations were made at six places: (1) a wholesale meat supplier; (2) a formal restaurant; (3) a fast-food outlet; (4) a hospital food service, with special attention to diet services; (5) a dairy; and (6) a two-year program in food service management.

All the above examples of career education activities represent major projects in which students have been involved to learn more about careers. But it should be remembered that small, everyday connections between school subjects and careers are just as typical of infusion in the Akron program. For instance, in the first grade, children might be asked to collect or draw pictures of various workers and their tasks (such as a policeman helping children cross the street). Fifth graders might prepare reports on how various workers use math in their jobs. Eighth graders might discuss what new careers have arisen in the space age.

What Careers Fit What Subjects?

At all levels, activities suggested in the project's curriculum guides cover all 15 occupational clusters developed by the U.S. Office of Education; the clusters are generally distributed among subject areas as follows:

In social studies classes, the Transportation and Public Service clusters are covered.

In science classes, the Agri-Business and Natural Resources, Marine Science, Environmental Control, and Health clusters are covered.

In language arts, the Communications and Media and Business and Office clusters are covered.

In mathematics classes, the Marketing and Distribution cluster is covered; in addition, the relevance of mathematics to all clusters is emphasized.

In industrial arts classes, the Manufacturing and Construction clusters are covered.

In home economic classes, the Consumer and Homemaking, Hospitality and Recreation, and Personal Services clusters are covered.

In music and art classes, the Fine Arts and Humanities cluster is covered.

It is clear that this approach lends itself to use with many different types of students and many different teaching strategies. Basically, teachers can select or adapt, or even develop from scratch, those activities which best suit their students and their preferred teaching styles. However, the basic assumptions of the Akron program do have certain implications for teaching strategies:

1. Since self-awareness (and, preferably, self-esteem) are fundamental to career education, guidance activities play a large part in the curriculum, particularly at the K-6 level.

2. Emphasis on development of student decision-making skills suggests that not only should structured decision-making exercises be used with students, but also that the choices they make in their daily lives should be highlighted and explored.

3. Emphasis on the students' abilities and interests in regard to careers implies a carefully non-stereotyped approach to the presentation of career information.

Career education can be conducted in a traditional classroom; however, it also lends itself easily to more innovative and individualized class settings as well.

What Physical Facilities Are Needed?

With such a wide variety of activities, it is evident that specific facilities that are necessary in this program cannot be pinpointed. In general, program staff and teachers have done as much as possible to explore the career implications of the physical facilities it already possessed, such as science laboratories, industrial shops, vocational education facilities, etc. For more specialized facilities, coordinators and teachers have looked to the community and its resources.

Since 1976, Akron's commitment to career education has led to the construction of a new high school, Central Hower, in which facilities have been tailored to the six career clusters taught in the career education component (business administration and management, communication arts, engineering, science and mathematics, medicine and health, performing arts, and social sciences), and in which career-related facilities are among the most up-to-date in the country.

The program's success has also led to plans for other Akron high schools which will follow the Central Hower model, integrating high-school level career experiences with continuing academic study. These newly built or remodeled facilities represent a major financial commitment, evidence of the Akron community's widespread and continuing belief in career education.

What Are Some Key Materials Used?

The locally developed curriculum guides are fundamental materials for teacher use. Each of the grade 1-6 guides is a booklet of 50 to 150 pages, indicating teacher approach and pupil activities, references and materials, and goal statements. Each booklet lists activities under the subject headings of health, mathematics, language arts, science, and social studies.

For instance, the following ideas are suggested for social studies activities for second graders:

COMMUNITY HELPERS		
TEACHERS APPROACH AND PUPIL ACTIVITIES	REFERENCES AND MATERIALS	GOAL STATEMENTS
1. Policeman a. Invite a policeman to speak. b. Interview an officer and report to the class. c. Discuss advantages and disadvantages of this job.	Use book: Slobodkin - Read About the Policeman Use Filmstrip - Fs 1179 - Policeman	Students will be able to list work tasks of a policeman.
2. Fireman a. Invite a fireman to speak. b. Interview a fireman. c. Visit a fire station. d. Visit the training station.	Utilize books such as Read About the Fireman Use films and filmstrips on fireman and fire-fighting	Students will be able to list work tasks of a fireman.
3. Postman a. Interview or invite a postman to speak to the class. b. Visit a post office. c. Make a mural showing the different workers who handle mail from the time it is deposited in the mailbox until the addressee receives it.	Use books such as Read About the Postman Use filmstrips such as FS1181 - The Mailman	Students will be able to draw work tasks of Postal employees.

TEACHERS APPROACH AND PUPIL ACTIVITIES	REFERENCES AND MATERIALS	GOAL STATEMENTS
4. Doctor a. Invite a doctor to speak to the class. b. Visit a hospital.		Students will be able to list some work tasks of a doctor.
5. Nurse a. Invite a nurse to speak to the class. b. Visit a hospital. c. Discuss the many kinds of nurses.	Books such as First Book of Nursing, and First Book of Hospitals	Students will be able to list the kinds of nurses.
6. Ambulance Driver a. Invite an attendant to talk to the class.		Students will be able to play the work tasks of an ambulance attendant.
7. Small Shop Owner a. Visit a small shop. b. Invite the owner of a small shop to tell about his business.		Students wil be able to role play the work tasks of a small shop owner.
8. Owner or manager of a large store, supermarket, or department store a. Visit one or more of these establishments. b. Invite workers to tell about their jobs.		Students will be able to draw work tasks of supermarket employees.

Sixth graders might be exposed to some of the following activities during a mathematics curriculum:

FRACTIONS - MEASUREMENT - DECIMALS		
TEACHER APPROACH AND PUPIL ACTIVITIES	REFERENCES AND MATERIALS	GOAL STATEMENTS
1. Discuss how a trucker must compute fuel prices using his knowledge of decimals.	Paper	Students understand how truckers and other transporters use decimals in their work.
2. Devise an Air Freight Rates Chart listing where the freight travels from and to, plus the cost (per 100 lbs.) Use decimals to compute your answer.	Paper	Students recognize how mathematics is used by freight industry.

TEACHER APPROACH AND PUPIL ACTIVITIES	REFERENCES AND MATERIALS	GOAL STATEMENTS
3. Students conduct a public opinion poll. Graph the results.	Paper, ruler, questionnaire developed by class	Students can graph various types of data and understand poll results.
4. Make a field map of the school grounds.	A level table cut from wallboard or a clipboard; an alidade can be constructed by placing straight pins at the ends of a ruler; pacing can be made accurate by checking strides against known distances	Students can explain how to make a field map.
5. Learn to read railroad, airline, and bus line timetables. Develop a new timetable.	Timetables from various transportation companies	Students can read transportation timetables.
6. Obtain a large map of Akron (or Ohio) and mark the routes of field trips taken throughout the year. Use the scale to compute the distance in miles traveled during the year.	Yarn, large map of Akron or Ohio	Children are able to compute actual distances from the scale on a map.
7. Investigate and list the various types of surveying done and the tools used for each type. Example: land, geodetic, topographical, underground, nautical, and aerial surveying.	Encyclopedia	Students can match the names of the different types of surveying to their descriptions and name a few of the important tools of the surveyer.
8. Divide the class into small groups and let each group design a house.	Paper, rulers film: "Drafting" - 7 minutes, c-follow-up for house designs	Students can use their knowledge and imagination to design some type of building.
9. Build a model of the house that each group has designed.	Cardboard or experiment with other materials	Children are able to devise a model of the house they have designed.
10. Develop a list of occupations which require a knowledge of square measurement. Example: laying tiles for floors and ceilings, carpeting, wallpapering, and landscaping.	Paper	Students are able to name several occupations in which square measures are used.

The 7-10 curriculum guide covers the subject areas of English, home economics, industrial arts, math, science, and social studies. In addition, it contains a 43-page list of career-related materials, audio-visual aids, and filmstrips available from the Career Development Program. Suggested activities in this guide can be adapted to any of the grade levels with some modifications. Each activity suggestion lists the content, concepts, techniques, and resources applicable to that activity. An example of suggested science activities follows:

ONTENT	CONCEPTS	TECHNIQUES	RESOURCES
Earth Science			
1. A mineral is a naturally occurring inorganic solid, with a fixed internal (atomic) structure.	The economic geologist is both scientist and business man. He/she must analyze, synthesize, compile, and coordinate data of both a scientific and economic nature.	Discussion: Use the following questions to stimulate discussion: What is a natural resource? What is a human resource? What industries depend on natural resources? What industries depend on human resources? Would you rather work with people or objects?	Boyd, Waldo T., "Your Careers in Oceanology" 1968 Simon Shuster, Inc. 1 West 39th St., New York, N.Y. 10013 Occupational Outlook Handbook Published by the U.S. Dept. of Labor, Bureau of Labor Statistics
2. A rock is a portion of the earth's crust. It is composed of one or more minerals.	To identify a rock or mineral, several work functions are employed. Some of these are: a) evaluating - data obtained by examination of observable physical properties. b) judging compositional characteristics. c) comprehending forms in space (cleavage, crystal forms) d) perceiving pertinent detail in objects. e) visual comparisons to see slight differences in form or shape.	Most earth science instruction includes several lessons on physical properties and identification of rocks & minerals, followed by a lab activity in which the students identify "unknown" hand specimens. The teacher should precede this lab with a discussion of the work functions outlined in "concepts" writing the statements on the board. Have students determine in what way these functions will be employed in their identification exer-	Careers, Inc., Largo, Florida, 33540, Oceanographer, Summary No. S-187 Gamow, George "Matter, Earth & Sky" Prentice-Hall, Inc. Englewood Cliffs, N.J. 1965 Weitz, Joseph L. Your Future in Geology, Richards Rosen Press New York, N.Y. 10010, 1966 Chronicle Occupational File

CONTENT	CONCEPTS	TECHNIQUES	RESOURCES
	f) using finger dexterity. g) making color discrimination	cise. During and following the identification processes, discuss difficulties and successes with as many individual students as possible emphasizing these in relation to the various work functions performed.	Occupational Exploration Kit - SRA
3. Many industries depend on economic geologists and mineralogists to find natural resources.	The geologist is likely to be a person who prefers working in a non-social setting with things or objects in an abstract or creative way.		
4. In studying the earth's crust, rocks and minerals must be identified.			
5. Rocks & minerals are classified and identified on the basis of their observable physical properties.			

These curriculum guidelines are undergoing revision in order to update them and erase any lingering sex stereotyping left in since the first drafts were written in 1972. They might serve as useful models to an adopting district, but it must be remembered that their suggestions may not apply to the career-related needs of students in other parts of the nation. Again, it is the methods of implementing career education which they present that are most transportable.

Other career education materials produced by project staff include Outline for Programming at the senior high school level; a number of brochures for community people and agencies; a special career curriculum guide for fusing career education into the reading management system; special guides for elementary science and math; and special guides for special education.

PARENT AND COMMUNITY INVOLVEMENT

Again, the project staff, writing in the Flight Plan, has best expressed the roles which parents and community members can play in a collaborative approach to career education. Like the planning process, these roles are expressed in terms of models which adopting districts might follow, but are based on actual experience

from Akron's program:

In carrying out collaboration, the family and home can

- motivate children's learning because evidence shows a strong connection between student achievement in basic skills and parental influence.
- serve as the student's first source of information about career descriptions, demands, and qualifications.
- discuss work experiences with children: positive as well as negative aspects of current job; how it was obtained; changes in jobs; job aspirations; what might be done differently in job selection and preparation; desirable alternative jobs.
- relate work in and outside the home to home maintenance and family support.
- reinforce the work of the school in developing good work habits by relating them to children's household duties.
- encourage children to take advantage of school programs to enlarge their career awareness and knowledge.
- be willing to serve on an advisory committee, or other policy group, for career education.
- serve as resource persons to talk about job experiences in the classroom.
- help to arrange for school visits to places of employment.
- encourage other parents to speak about their careers in the classroom and to arrange school visits to their places of employment.
- volunteer to accompany students on field trips or other exploratory experiences....
- teach "mini courses" on hobby skills or on community organizations that need volunteer help; the purposes would be to encourage worthy use of leisure time as well as to orient students to possible careers.

In carrying out collaboration, business, labor, industry, government, social services can

- establish a community-education council to discuss, formulate, and implement policies with regard to collaboration; committees, each representing schools and a segment of the working community, can also be formed to work on specific programs.
- provide up-to-date information about available community field trip observation sites and classroom speakers; participate in evaluation of field trips and speaking engagements.

- supply schools with information about available community field trip observation sites and classroom speakers; participate in evaluation of field trips and speaking engagements.
- set up a system for contacting labor union officials and members to facilitate their participation in various phases of career education.
- identify a corps of personnel officers to aid school counselors in orienting students to realities in the world of work as well as to postsecondary education and training opportunities.
- participate in in-service programs for school personnel.
- provide opportunities for teachers, counselors, and other educators to observe and/or participate in various kinds of occupations by means of workshops during vacation periods.
- organize work-exchange programs for limited periods of time, during which school employees and persons from a variety of employment sites in the community exchange work roles.
- share techniques and methodology used for training in proprietary, in-house, and union workshop programs.
- study selected persons in various occupations, perhaps by using Social Security records, to determine what kind of preparation is most contributory to job success and satisfaction.
- make realistic definitions of requirements for jobs available in the community and communicate these to educators and students.
- develop policies on, and opportunities for, student work experiences which are part of their school programs and which do not cause displacement of adult workers.
- make an inventory of part-time jobs available locally for students in various age groups.
- organize a system for providing students and parents with information concerning present and future manpower needs in various full-time occupations and the number of persons preparing for such occupations, especially at the local level.
- coordinate job placement services in the community, together with follow-up procedures.

Several projects involving parents are described in detail in the Flight Plan. Experiences and suggestions are presented regarding parents as speakers on career-related topics; parent effectiveness training groups; and parent involvement in a school-wide business similar to the Warm Fuzzy Company described earlier. Also, of course, the business/community groups who have played an active part in career education in Akron have been made up largely of interested, involved parents.

What Kinds of Things Has the Community Done?

The high involvement of business, labor, industry, government, and social service organizations in Akron's program has already been referred to. The most significant thing about this role is the shared authority and responsibility for career education which these groups carry, along with the Akron school system. This shared authority and responsibility really are the essence of the collaboration concept in Akron. Community groups actually initiate and carry out educational activities, as well as providing constant input to school efforts. Some of the activities which community groups have been responsible for are:

> Labor Education Advancement Program (LEAP), sponsored by the Urban League and others. This program exposes high school students, particularly ethnic minorities and women, to the wide variety of careers available in skilled and industrial trades.
>
> Job Readiness Program, sponsored by the American Society for Personnel Administration. This program, conducted within the schools in all tenth grade classes, presents students with information on job applications, hiring procedures, and job interviewing.
>
> Vocational Exploration Program, sponsored by the National Alliance of Businessmen and the AFL-CIO Human Resources Development Institute. This summer program enables employers and unions to hire economically disadvantaged young people.

Measures of Participation. Several measures are used to determine levels of parent and community involvement. A master card catalogue that includes every community resource utilized in the program is constantly kept current to include classes involved, contact person(s), teacher(s), and time and date of utilization. Master calendars of all field observations are posted daily. Certificates of appreciation are sent to all parents and community members who offer their services to the program during the school year.

Details of program operations and suggestions for adopting districts are found in the Flight Plan.

STAFFING AND MANAGEMENT

Staffing

The Program Director. The director of the Career Development Program reports to the Assistant Superintendent for Curriculum and Instruction; he also works in close cooperation with the directors of Elementary Education, Secondary Education, Child Study and Guidance, Vocational Education, and Special Education. He is responsible for: (1) working with the above departments in curriculum develop-

ment and implementation of activities; (2) directing the career education staff in developing programs and carrying out activities; (3) developing and working with collaborative programs involving local business, industry, labor, and community agencies; (4) acting as advisor to the Akron Regional Development Board Business-Education committee; (5) giving leadership for organizing and carrying out inservice programs (6) administering the program budget and submitting proposals for funding; (7) conducting evaluation of the total program and the personnel with it; and (8) disseminating program information to the total school system, business, labor, and the rest of the community.

The Career Education Coordinators. There are eight full-time career education program coordinators: four at the K-6 level and four at the 7-10 level. Each elementary coordinator is assigned to work in two or three elementary schools, for a total enrollment of approximately 1,800 - 2,000 students. The secondary coordinators have a similar student/coordinator ratio.

Both secondary and elementary coordinators must have three years of teaching experience, one year of outside work experience, and (preferably) counselor certification. Their specific functions are:

1. working with curriculum specialists and school staffs to infuse career education into the existing curriculum
2. helping teachers to develop career-related activities
3. assisting in the selection and distribution of supplemental career education materials
4. assuming responsibility for administrative tasks related to planning and scheduling of resource speakers and field observations
5. developing and implementing in-service meetings both at the building and program-wide levels
6. providing leadership for, and serving on, building advisory committees for career education
7. working with the building counselor to develop and implement a guidance program as it relates to career development, or taking full responsibility for this, if there is no building counselor
8. conducting periodic evaluations of the Career Development Program as required by the State Department of Education.
9. working with local business, industry, labor, and other community organizations in collaborative efforts for career education
10. making presentations to local and other meetings, and
11. acting as liaison persons between the career education office and their respective buildings.

During the 1976-77 school year, one secondary coordinator worked full time as liaison person with the Akron Regional Development Board for expanding collaboration with the community in career education. In that capacity, his duties were:

1. representing and explaining career education at various community and professional meetings such as inservice programs, university classes, and sessions of local, regional, state, and national organizations
2. chairing a subcommittee of the Akron Regional Development Board's Business-Education Committee
3. identifying appropriate community persons to serve on ARDB subcommittes
4. assisting the other coordinators with inservice program development through liaison with the ARDB and the University of Akron
5. maintaining and improving existing collaborative efforts in career education and developing new ones with local community resources
6. intensifying efforts to collaborate with labor unions in career education, and
7. developing an instrument to secure information to aid in job placement for students from the three senior high schools associated with the Career Development Program.

The Support Staff. The program support staff consists of four people. The secretary to the director, besides performing usual secretarial duties, also acts as account clerk for the program. One paraprofessional processes arrangements for field trips and speakers. Two other paraprofessionals also provide support to professional personnel. They follow up correspondence on field trips and speakers; send notices; make reservations; gather materials for inservice meetings; monitor the loan and return of materials in the career education office; sometimes cover classes for teachers on field trips; occasionally drive students to field trip sites; and assist with supervision of students.

Management Strategies

The management of the coordinator team includes a number of processes. Prior to the beginning of school, the career staff assesses program needs for the year, determines major areas of concentration, and establishes time frames for accomplishment of major program goals. Each coordinator submits his or her own target objectives for the year to the director. These targets are discussed and agreed upon by both parties. End-of-the-year personnel evaluations relate to the agreed upon job targets identified.

Two half-days per week are devoted to planning time and staff meetings.

This provides an opportunity for the career staff to be aware of overall programming and any staff concerns. Weekly logs are submitted to the director, providing an up-to-date review of each coordinator's activities and the time allocated to each building. Periodically, the director reviews the log with each coordinator in order to make necessary adjustments in total services provided to building staffs.

The overall management strategy of Akron's program can be summed up into two principles: share decision making, and give recognition for individual effort. As the director of the Career Development Program puts it, "My own personal strategy of program management is to delegate program responsibilities to all parties involved in career education. The department constantly strives to involve other major educational departments in developing and implementing the program. In other words, career education doesn't belong to the director of career education or his staff, but it belongs to teachers, administrators, and local people."

Inservice Training

For the original group of career coordinators, most training was necessarily on-the-job. Recent recruits, however, have benefitted by a three-week inservice training program and a considerable amount of time working closely with trained staff members. Inservice training for all career staff consists largely of professionally sponsored workshops and conferences.

The objectives of inservice training for school staff members are: (1) to develop an awareness of career education concepts; (2) to demonstrate to them that use of community resources must be part of career education; and (3) to assist them in devising methods of incorporating career education concepts into their school functions. Specific objectives for in-service sessions are tailored to the needs of participants and to types of workshops.

Inservice training has been of various types. First, the University of Akron, through its Coordinator of Career Education Workshops, has since 1974 offered a four-hour credit course in career education open to both practicing educators and undergraduate education students. The coordinator also provides direct assistance for inservice education to local school districts implementing career education programs. These inservice programs also may be given for credit.

Building-level inservice programs are conducted twice a year or more for the entire staffs of school buildings involved in the Career Development Program. Purposes include introducing teachers to new career education materials, meeting

the needs of the staff in a particular school, and demonstrating activities from other career education workshops or classes. Specific topics are determined by consultation with the building principal and by assessment of teacher needs on regular end-of-year evaluation of the Career Development Program. An example program in 1976-77 focused on helping teachers explore their attitudes concerning career education. A series of sessions was held throughout the year on the following topics: (1) attitude and staff development, (2) attitude and behavior, (3) attitude and professionalism, and (4) attitude and self-development.

Mini-workshops are also offered, occupying usually one Thursday afternoon plus a day-long Saturday session. Unlike building inservice, these workshops offer optional college credit. In 1976-77, seven mini-workshops were held covering the following topics:

1. Career education: What is it? How to do it?
2. Self and decision-making
3. Reading: Who needs it? Career education and reading skills
4. Kindereconomy and mini-society
5. Developing placement skills
6. Special Kids
7. Career education and stereotyping

Seminars, centered around a year-long theme and featuring two speakers and opportunity for questions, are held monthly. The 1976-77 theme was business structure and business management.

Finally, a major inservice effort each year is the summer Career Guidance Institute. The one- to two-week program enables school staff members to go out into selected community organizations to learn more about the world of work and to increase their knowledge of community resources which may be usable with their students. One or two full days at one or more work sites are the usual practice at these institutes, with an orientation session preceding each on-site visit and follow-up sessions afterward. At the work site, staff are commonly exposed to business decision-making and problem solving processes; operating procedures and processes; and personnel requirements. Business, government agencies, and community organizations have all hosted such on-site visits. Follow-up sessions are used to help staff members develop materials (simulations, games, slide-tape or video-tape presentations) or strategies for use in the classroom.

As mentioned, the primary responsibility for planning and implementing in-service programs rests with the building coordinators and the Coordinator of Career Education Workshops from the University of Akron. These people plan the

content of the sessions, obtain resource speakers and materials, conduct sessions, and coordinate activities. In this process they encourage the support and contributions of school staffs, especially administrators, and school and community persons with expertise in career education or specific career areas. In other words, the collaborative process extends to planning staff development in addition to planning student activities.

Assessment of each program is done at the program's close. Participants from both school and community, if applicable, are asked to indicate their satisfaction with the program and their growth in knowledge and attitudes. Weaknesses in the program and recommendations for future programs are also sought. In addition, the levels of implementation in the classroom are later assessed, near the end of each school year, by asking staff members to indicate the percentage of time they spend with students on various types of career education activities.

COSTS

Sources and Levels of Funding

1971-72:	80,810	(VEA Part C State)	1972-73:	147,695	(VEA Part C Federal and State)
	38,000	(VEA Part D State)			
	56,090	(State and Local)		87,395	(State and Local)
	$ 174,900	Total		$ 235,090	Total
1973-74:	141,054	(VEA Part C State)	1974-75:	82,565	(VEA Part C Federal)
	101,827	(State and Local)		189,700	(State and Local)
	$ 242,881	Total		$ 272,265	Total
1975-76:	16,115	(VEA Part C Federal)			
	530	(VEA Part D State)			
	247,735	(State and Local)			
	$ 264,380	Total			

Since the Akron effort is so large and its career education activities are constantly expanding, it would be unrealistic to make a distinction between "implementation" and "maintenance" costs. Also, facilities costs may vary widely depending on what district, school, and community resources are already available, so costs for facilities are not included. In 1975-76, direct project costs were as follows:

	K-6	7-8	9-10
Personnel	$116,781	$41,147	$53,821
Personnel Training	2,649	1,921	210
Equipment	400	325	0
Consumable Supplies	8,105	4,920	2,873
Other (travel, postage, telephone, pupil transportation, miscellaneous)	23,454	9,458	3,096
	$151,389	$57,771	$60,000

Personnel training costs refer only to costs of consultant time and rental of facilities. Teachers are not paid for participation in the training program. Instead, the awarding of college credits for some inservice sessions and the high quality and relevance of the training provide incentive for participation.

In 1975-76, approximate costs per student were $20 at the K-6 level, $25 at the 7-8 level, and $30 at the 9-10 level.

EVIDENCE OF EFFECTIVENESS

The Evaluation of the Program

Evaluation of the effectiveness of Akron's program took place during the 1975-76 school year. A third-party evaluator developed the test used to measure career education results throughout Ohio. The evaluation design used in Akron was a treatment/control group, posttest only design. Testing was done at the third, sixth, eighth, and tenth grade levels.

The Tests

The tests used to measure student growth were developed in 1974-75. After observation of in-class education practices in Akron and another Ohio city, the evaluators developed and pilot-tested pools of cognitive and affective items. Those items judged to best address the program's objectives were then field-tested in seven Ohio cities. The evaluators selected the items that discriminated most effectively between program and non-program students to construct cognitive and affective tests of career education concepts in grades 3, 6, 8, and 10. Each test contained 40 cognitive items and 40 affective items.

Content validity of the tests was rated by Ohio state and local program officials. They were asked to rate each item from the final tests as "important," "neutral," or "unimportant." They rated an average of 87% of the test items as "important" while only 4% were rated "unimportant." Only those items rated "important" were left in the final test version.

Reliability coefficients for the cognitive and affective sections were computed using the Kuder-Richardson 20 formulas. The average cognitive section reliability coefficient across grade levels was .86; for the affective section, the average reliability coefficient was .60.

Sample test items are:

- Grade 3 (cognitive items): Which is a job in medicine? A. Orderly B. Patient C. Officer D. Teacher
- Grade 6 (affective item): I'm too young to think about what I want to do when I grow up. A. Agree B. Disagree
- Grade 8 (cognitive item): What occupation would require the greatest amount of formal education? A. Psychologist B. Practical nurse C. X-Ray technician D. Dietition
- Grade 10 (affective item): Being responsible is as important as being smart. A. Agree B. Disagree

Cognitive items have objectively correct answers, while the "correct" answers for affective items were determined by Ohio State Department of Education staff based on the Ohio Career Education Model's goals and desired outcomes. It should be noted that these tests were specific to the student population and programs in Ohio, and their validity in other settings cannot be assumed.

Evaluation

Approximately 250 program and non-program students from within the school district were tested at each of the four involved grade levels (about 2,000 students in all). These samples were drawn as intact classes, with ten classrooms of program students being selected at each grade level (40 classrooms altogether). Using information such as mean reading scores, IQ scores, grade point averages, and socioeconomic indicators, the program director selected the most comparable possible non-program schools. From these, ten intact classes at each grade level were selected to serve as the control sample. Selection of classrooms was done using an alphabetical list of all teachers' names in the program schools and a similar list of all teachers' names in non-program schools. A random number table was used to select ten teachers in each group, and their classes were identified as members of the two samples.

At the third and sixth grade levels, the entire class of each of the teachers was tested. In grades 8 and 10 only English and social studies teachers were included on the lists, because only these classes were comprised strictly of eighth or tenth grade students. Also, since these classes were re-

quired in those two grades, students of all levels of ability had a reasonably equal chance of being included in each sample. The resulting samples were quite comparable, each containing approximately even numbers of boys and girls, and whites and nonwhites. Each tenth grade sample included about one-fourth academic and three-fourths non-academic students.

Final copies of the test and written directions for administration were supplied to the program director by the evaluator. The local program coordinators administered the tests to both program and non-program students. Tests were administered to both program and non-program students during the week of May 3-7, 1976. In grade 3, test administrators read the questions and response choices aloud to students. In grades 6, 8, and 10, students read the questions and responded themselves.

Results in the Cognitive Domain

The tests results in the cognitive domain were significant at all grade levels. Differences between groups were tested using *t*-tests calculated at each grade level. the data are shown below, with the seven areas at each grade level ranked according to *t*-values. Starred values are significant at the .05 level.

THIRD GRADE:

Average percent of items correct:

Program students: 62% (N=262)
Non-program students: 51% (N=278)

Developmental area	t-value
Economics	3.53*
Self	2.91*
World of work	2.89*
Education and training	2.61*
Employability and work adjustment	2.28*
Individual and environment	2.25*
Decision making	0.93

SIXTH GRADE:

Average percent of items correct:

Program students: 58% (N=276)
Non-program students: 51% (N=285)

Developmental area	t-value
Self	2.54*
World of work	2.14*
Education and training	2.15*
Economics	1.19
Individual and environment	0.88
Decision making	0.79
Employability and work adjustment	0.65

EIGHTH GRADE:

Average percent of items correct:

Program students: 44% (N=266)
Non-program students: 32% (N=227)

Developmental area	t-value
Decision making	3.55*
Economics	3.54*
Self	3.35*
Education and training	3.12*
World of work	2.86*
Individual and environment	2.46*
Employability and work adjustment	2.04*

TENTH GRADE:

Average percent of items correct:

Program students: 57% (N=233)
Non-program students: 35% (N=211)

Developmental area	t-value
Education and training	8.92*
Individual and environment	8.34*
Self	7.24*
Decision making	5.06*
World of work	4.18*
Employability and work adjustment	1.44
Economics	1.15

Results in the Affective Domain

The affective domain is widely recognized to be more difficult both to influence and also to measure than the cognitive domain. In light of this, the results of Akron's program are quite impressive. Again, starred t-values are significant at the .05 level.

THIRD GRADE:

Average percent of items correct:

Program students: 65% (N=262)
Non-program students: 61% (N=278)

Developmental area	t-value
Individual and environment	2.03*
Economics	1.91*
World of work	1.56
Decision making	0.79
Employability and work adjustment	0.69
Self	0.40
Education and training	0.21

SIXTH GRADE:

Average percent of items correct:

Program students: 66% (N=276)
Non-program students: 64% (N=285)

Developmental area	t-value
World of work	2.60*
Education and training	1.33
Economics	0.34
Individual and environment	0.24
Self	0.17
Decision making	0.13
Employability and work adjustment	-0.77

EIGHTH GRADE:

Average percent of items correct:

Program students: 47% (N=266)
Non-program students: 43% (N=227)

Developmental area	t-value
Economics and training	2.00*
Economics	1.80*
World of work	1.64
Individual and environment	0.65
Decision making	0.61
Self	0.51
Employability and work adjustment	-0.34

TENTH GRADE:

Average percent of items correct:

Program students: 65% (N=233)
Non-program students: 38% (N=211)

Developmental area	t-value
Decision making	8.30*
Individual and environment	7.58*
Self	6.48*
Employability and work adjustment	5.50*
World of work	4.60*
Economics	3.54*
Education and training	3.41*

Test Performance of Different Types of Students

The above results show that program students learned significantly more than non-program students on the average. But in order to examine how different types of students performed on the test, the evaluator compared program and non-program students' performance within six subgroups: boys; girls; whites; non-whites; academic students (in the 10th grade); and non-academic students (in the 10th grade). The results clearly showed that the program is effective for a wide range of students.

What the Results Mean

The data make it clear that students within the career education program have learned considerably more than non-program students in the areas measured by the tests. In most cases, cognitive differences were larger than affective differences; but in all grades, especially the tenth, program students showed evidence of more learning in both domains. In particular, results at the tenth grade level in the affective domain are notable, both for their rareness in career education program evaluations and for their importance. To be sure, knowledge gains are important preparation for the world of work, but attitude is perhaps even more important, and far harder to influence.

Another factor underscoring the value of this program is the importance of its stated goal areas to human life. Any step toward meeting such goals must be counted worthwhile, particularly when the step can be taken with nearly 14,000 students at a cost per student not exceeding $30.

Favorable Review by Joint Dissemination Review Panel

The Joint Dissemination Review Panel (JDRP) was established by the Education Division of the Department of Health, Education, and Welfare in 1972. The joint U.S. Office of Education - National Institute of Education (NIE) Panel currently has 22 members, eleven from each agency, appointed respectively by the Commissioner of Education and the Director of NIE. The JDRP meets periodically to review the evidence of effectiveness submitted for a wide variety of federally supported educational products and practices, with effectiveness being the sole criterion for approval by the JDRP. It is charged with the responsibility of ensuring that educational interventions - projects, products, or practices - have been

shown to have positive impacts on their recipients before they are disseminated with federal funds or endorsed by the Education Division.[1]

In May 1978, the JDRP reviewed the Akron Career Development Program and approved it for nationwide dissemination.

CONCLUSION

In sum, the evaluation of the Akron career education program in 1975-76 reveals differences in student learning which are consistently higher for program students across many developmental areas and several grade levels. The consistency of results, the program's economic feasibility, and the importance of the goal areas offer strong support that the Akron career education program is an effective and important educational effort.

[1] Tallmadge, G.K. The Joint Dissemination Review Panel: IDEABOOK. Washington, D.C.: NIE/DHEW, September 1977.

Appendix A

CAREER EDUCATION
LEARNER OUTCOMES K - 10

CAREER MOTIVATION - PRIMARY K-3

SELF - The students will be able to become aware of their interests, abilities, feelings, attitudes and values.

The student will:

1.0 Be able to relate his/her capabilities to work and play behavior.

1.1 Begin to recognize feelings toward self, peers, adults and his/her immediate environment.

1.2 Begin to become aware of the school and community as influence on the individual.

1.3 Begin to become aware of the environment best suited to his/her own learning.

ECONOMICS - The students begin to examine the roles of consumers and producers.

The student will:

2.0 Begin to understand that paid employment produces goods and services.

2.1 Begin to differentiate between consumers and producers.

2.2 Become aware of money as a medium of exchange.

2.3 Begin to recognize individual needs for product and services.

2.4 Begin to see relationships between income, life style and paid employment.

WORK OF WORK - The students begin to examine the scope and nature of work.

The student will:

3.0 Begin to recognize the wide variety of work performed in our society.

3.1 Begin to recognize why people work and sees relationship between income and life style.

3.2 Begin to understand the interdependence among contributing members in the work world.

3.3 Begin to recognize a wide variety of occupations.

3.4 Begin to recognize the interdependency of workers in his immediate environment.

DECISION MAKING - The students become aware of the process of decision making.

The student will:

4.0 Begin to understand that one's value system influences the decision making process.

4.1 Begin to recognize personal values.

4.2 Begin to establish and explore tentative personal goals as they relate to his/her immediate environment.

4.3 Begin to understand the decision making process and has experience in its application.

4.4 Begin to understand that a person must accept responsibility and consequences for decisions.

INDIVIDUAL AND ENVIRONMENT - Students recognize roles and relationships between themselves and the home, school, community and work.

The student will:

5.0 Begin to develop concept of work and is able to see why people work.

5.1 Begin to understand that work relates to the person's physical and social environment.

5.2 Begin to form the needs and wants of an individual environment.

5.3 Begin to understand and recognize forces that influence and individual environment.

EDUCATION AND TRAINING - Students begin to learn behavior and job keeping skills that must be acquired.

The student will:

6.0 Begin to develop an awareness and appreciation for the life relatedness of education.

6.1 Begin to recognize that educational experiences are part of life planning.

6.2 Begin to understand the relationship between education and work.

6.3 Begin to understand that life styles vary and relate to different types of educational preparation.

EMPLOYABILITY AND WORK ADJUSTMENT - Students become aware of how good attitudes and behavior contribute to personal and social success.

EMPLOYABILITY AND WORK ADJUSTMENT - (CONT'D)

The students will:

7.0 Begin to develop skills working with peer groups.

7.1 Be given opportunities to complete work tasks commensurate with their qualifications.

7.2 Begin to understand characteristics of a good worker including personal appearance, manners, respect for others and work skills.

7.3 Begin to accept responsibility for the completion of assigned tasks.

CAREER MOTIVATION
INTERMEDIATE 4-6

SELF - Students will recognize abilities, interests, aptitudes and achievements.

The student will:

1.0 Understand and accept individual uniqueness of their changing interests resulting from learning, growth and maturation.

1.1 Begin to affirm aptitudes related to performance.

1.2 Begin to express feelings in a socially acceptable manner.

1.3 Gain greater awareness of personal characteristics.

1.4 Recognize and accept individual differneces and uniqueness of others.

ECONOMICS - Students will identify their roles as consumers and producers of goods and services in our society.

The student will:

2.0 Identify roles of financial institutions.

2.1 Recognize the impact of supply and demand in the economic cycle.

2.2 Understand economic concepts of buying, saving and borrowing.

2.3 Gain greater understanding of relationships between income, life style and paid employment.

2.4 Gain awareness of organizations and social units that provide products and services.

2.5 Obtain greater understanding of individual needs for products and services.

2.6 Begin to understand the sequence required in making consumer decisions

WORLD OF WORK - Students gain additional awareness of and appreciation for the scope and nature of work and occupations.

The student will:

3.0 Begin to understand that specific work tasks can relate to groups of jobs.

3.1 Begin to clarify the concept of division of labor.

3.2 Gain further awareness that worker traits relate to aptitudes.

3.3 Continue to understand the variety of work performance by themselves, parents and other family members.

3.4 Begin to gain awareness of the relationship between technological change and occupational change.

3.5 Gain understanding of how the performance of occupations meets the needs of the community.

3.6 Gain further understanding and acceptance of the interdependency of occupations.

3.7 Realize what is involved in growth, behavior, training and rewards of persons engaged in specific occupations.

DECISION MAKING - Students become aware of the process of decision making.

The student will:

4.0 Understand that the decision making process is influenced by one's value system.

4.1 Gain an awareness that flexibility is essential in formulating plans.

4.2 Further explores tentative personal goals as they relate to his/her immediate environment.

4.3 Be provided with additional opportunities to participate in decision making situations.

4.4 Accept outcomes of personal decisions.

INDIVIDUAL AND ENVIRONMENT - Students recognize roles and relationship between themselves and the home, school, community and work.

The student will:

5.0 Accept work as a way of maintaining, improving or changing his/her environment.

5.1 Recognize and accept that work is related to the physical and social environment of the individual.

INDIVIDUAL AND ENVIRONMENT (CONT'D)

5.2 Recognize the implications of working with and without supervision independently and with others.

5.3 Identify major roles workers have in influencing the environment.

EDUCATION AND TRAINING - Students gain greater understanding, acceptance and affirmation on behavior and job keeping skills that must be acquired.

The student will:

6.0 Develop knowledge on how adults continue to learn.

6.1 Understand the relationship of educational training and life planning.

6.2 Recognize the significance of language, computational and reasoning development and the mastery of content knowledge as they relate to life planning.

6.3 See relationship between reading, writing, number skills and science and their practical applications to some occupations.

EMPLOYABILITY AND WORK ADJUSTMENT SKILLS - Students become aware of, accept and affirm that certain behaviors are expected and required for certain occupations and that these behaviors can be acquired.

The student will:

7.0 Gain further motivation to participate in social and work settings.

7.1 Perform tasks with or without supervision and be able to analyze quality and performance.

7.2 Understand the concept of leadership in helping the accomplishment of a task with greater efficiency.

7.3 Develop and further improve good work habits and attitudes necessary to complete work assignments.

7.4 Recognize that there are certain responsibilities to oneself and others in accepting a task or job.

7.5 Gain greater understanding on how to cope with failure when a task is attempted but cannot be completed due to lack of knowledge skills or background.

CAREER ORIENTATION

GRADES 7-8

SELF - Students will recognize abilities, interests, aptitudes and achievements.

The student will:

1.0 Have interests, aptitudes and values further clarified.

1.1 Utilize his/her self understanding in pursuing career information in the U.S.O.E job clusters.

1.2 Develop further knowledge of aptitudes needed for successful performance in the occupation of his/her interest.

1.3 Begin to clarify career aspirations based upon greater self understanding.

1.4 Affirm personal and social beliefs as extension of current achievement.

1.5 Gain greater understanding and acceptance that individual changes occur through maturation as a result of the learning and growth process.

1.6 Begin to explore his/her unique psychological changes, capabilities, and limitations.

1.7 Recognize that self understanding is related to one's values as they are unique to each person.

1.8 Recognize the need for a personal value system.

ECONOMICS - Students will gain greater awareness, acception and affirmation of the roles of citizens as consumers and producers of goods and services.

The student will:

2.0 Identify financial institutions and their roles in our society.

2.1 Understand the implications for career selection and life style.

2.2 Understand relationships between earning, spending and saving.

2.3 Begin to gain knowledge regarding non-salary earning.

2.4 Understand social benefits associated with various careers.

2.5 Understand economic rewards and an exchange for work tasks completed.

2.6 Gain greater understanding of cost involved in terms of time, education and training to enter into various occupations.

2.7 Understand economic concepts such as buying, selling, saving, and borrowing.

ECONOMICS (CONT'D)

The student will:

2.8 Have a greater awareness and understanding of the industrial, business and labor base of the economic system.

WORLD OF WORK - Students become aware of, accept and affirm the scope and nature of work and occupations.

The student will:

3.0 Understand that there is a wide variety of occupations.

3.1 Understand that occupations can be classified into fifteen clusters for examination.

3.2 Become aware of jobs in his immediate community.

3.3 Examine the level of jobs found in each of the fifteen clusters.

3.4 Obtain an appreciation of the contribution of workers in his immediate community.

3.5 Recognize interrelationship of worker to worker, occupation to occupation and worker to occupation.

3.6 Obtain opportunity for field observations to view occupations in local, business, industry, labor and professional settings.

3.7 Obtain an awareness of occupational information resources.

3.8 Learn what is involved in development, growth, behavior, training and rewards of persons engaged in specific occupations.

DECISION MAKING - Students become aware of, accept and affirm the importance of the rational process of decision making.

The student will:

4.0 Be able to describe the role of values in the decison making process.

4.1 Be able to better understand his/her personal values and relate them to selling objectives.

4.2 Be able to establish tentative personal goals and realize that some goals are not attainable.

4.3 Be able to understand that a process can be applied in making decisions.

4.4 Be able to utilize the process of decision making as it relates to exploring occupations.

DECISION MAKING (CONT'D)

4.5 Be able to recognize that previous actions on his/her behalf will affect present and future decisions.

4.6 Be able to accept outcomes of a personal decision

INDIVIDUAL AND ENVIRONMENT - Students become aware of and affirm roles in relation to home, school, community and work.

The student will:

5.0 Be able to recognize his/her individuality in relationship to the environment.

5.1 Recognize the work in relation to the physical and social environment of the individual.

5.2 Recognize social, economic, educational, and cultural forces that influence the environment.

EDUCATION AND TRAINING - Students become aware of, accept and affirm the importance of job seeking and job keeping skills.

The student will:

6.0 Understand relationship between learning achievement and further occupational aspirations.

6.1 Accept the importance of doing well in school subjects as preparation for future employment.

6.2 Gain improved perception of relationships between school subject matter as it relates to occupations.

6.3 Understand that varying life styles require different types of educational preparation.

6.4 Realize that proficiency in certain subjects are necessary to enter certain occupations.

6.5 Have a greater appreciation of the importance of the mastery of content knowledge to future life planning.

EMPLOYABILITY AND WORK ADJUSTMENT - The students become aware of, accept and affirm that certain behaviors are expected and required for certain jobs and that these behaviors can be learned.

The student will:

7.0 Be able to know characteristics that make for cooperative working relationships with other members of the group.

7.1 Have knowledge of methods of communicating with others to complete work tasks.

The student will:

7.2 Recognize differences in responsibility when working without supervision as compared to working with supervision.

7.3 Be able to relate self in the selection and performance of duties.

7.4 Be able to fill out a job application.

7.5 Be able to list personal qualities, aptitudes, and interests and relate to jobs in the Dictionary of Occupational Titles.

CAREER EXPLORATION

GRADES 9 - 10

SELF - Students become aware of, accept and affirm interests, abilities, feelings, attitudes and values.

The student will:

1.0 Use personally measured aptitudes to access and explore related occupational information.

1.1 Use understanding about personal abilities, interests, aptitudes, and achievements to identify tentative areas for career exploration.

1.2 Plan a course of study based upon information about personal abilities, interests, aptitudes, and achievements.

1.3 Explore the effects that physical assets and liabilities can have on career development.

1.4 Examine changes that occur through maturation.

1.5 Identify characteristics which differentiate personal uniqueness from uniqueness of others.

1.6 Identify unique characteristics of other people.

ECONOMICS - Students become aware of, accept and affirm the role of consumer, producer and citizen.

The student will:

2.0 Understand the political nature of a fluctuating economy.

2.1 Become aware of principles used in predicting economic trends in the community, state, and nation.

ECONOMICS - (CONT'D)

2.2 Understand the relationship among economic macro-systems.

2.3 Be aware of occupational areas which the student considers appropriate to desired life styles, abilities, and interests.

2.4 Recognize the possible responsibilities and rewards (benefits) in chosen occupational plans for the future.

2.5 Indicate social and economic benefits associated with a career choice.

2.6 Identify an occupational area which is appropriate to one's desired life style.

2.7 Identify the costs involved in terms of time, education, and training when selecting a career.

2.8 Understand factors which influence the desire for certain social and economic rewards.

2.9 Develop knowledge of investment institutions and their relationship to economic environment.

2.10 Understand the relationship among economic macro-systems and their applications to career planning.

WORLD OF WORK - Students become aware of, accept and affirm the scope and nature of work and occupations.

The student will:

3.0 Know the procedure to gain entry into tentative career choices.

3.1 Explore characteristics of tentative career choices.

3.2 Examine factors that may influence verticle or horizontal mobility within a career.

3.3 Know the detailed characteristics of a chosen career through "hands-on" experiences in the fields of a personal choice.

3.4 Evaluate employment opportunities in a chosen career area based on local, regional, and national trends considering current technological changes.

3.5 Identify a worker trait group and analyze the common and unique characteristics of jobs within that group.

3.6 Understand that rewards will vary with the requirements and responsibilities of the job.

3.7 Recognize that mobility of careers can cause changes in an individual's life style.

WORLD OF WORK - (CONT'D)

3.8 Become aware of any life-style conflicts with a chosen career.

DECISION MAKING - Students become aware of, accept and affirm the importance of the rational process of decision making.

The student will:

4.0 Recognize that values are an integral part of the decision making process.

4.1 Understand the individual, personal nature of values.

4.2 Understand that values are expressed in a person's behavior.

4.3 Identify and clarify personal values.

4.4 Establish goals by categories.

4.5 List both short-term and long-range goals

4.6 Be aware that time and circumstance can cause goals to change.

4.7 Identify goals and collect information pertinent to those goals.

4.8 Be aware of and accept the risks that affect all decisions.

4.9 Become proficient in identifying and using resource information in making career decisions.

4.10 Know and utilize the decision making process.

4.11 Select a course of study that is unique - the student's own.

4.13 Make a tentative career decision and investigate the selection.

4.14 Apply career attributes such as requirements, conditions, rewards, and characteristics to career decisions.

4.15 Demonstrate willingness to accept outcomes of personal decisions.

INDIVIDUAL AND ENVIRONMENT - Students become aware of, accept and affirm role in relation to home, school, community and work.

The student will:

5.1 Recognize that social institutions and organizations maintain and generate careers.

5.2 Understand the relationship between roles and their settings.

INDIVIDUAL AND ENVIRONMENT (CONT'D)

The student will:

5.3 Identify how family, school, peer group, church, community, and work experience have influenced development.

5.4 Become aware that occupational roles are ranked in a status hierarchy.

5.5 Use knowledge that other people influence personal goals.

5.6 Recognize skills that permit students to evaluate discrepancies between goals and the influence of environment.

5.7 Be aware of those skills needed to evaluate self in relationship to environment.

5.8 Use the concepts of role and role element in analyzing an occupation.

5.9 Recognize that roles have status and that status is a form of social reward.

5.10 Experience an occupational role reflecting personal choice.

EDUCATION AND TRAINING - Students become aware of, accept and affirm the importance of job seeking and job keeping skills.

The student will:

6.0 Become aware that learning to learn is a skill.

6.1 Develop an appreciation of learning and its relationship to living.

6.2 Understand that learning is also a lifetime activity.

6.3 Illustrate how participation in school activities can relate to selected career areas.

6.4 Identify skills acquired in school which are relevant to selected occupations.

6.5 Understand the in-school educational steps necessary to qualify for selected occupations.

6.6 Understand the different types of educational preparation that are necessary for various careers.

6.7 Understand the relationship between levels of education and levels of employment.

6.8 Understand the different types of educational preparation that are necessary for various careers.

6.9 Become aware of a relationship between in-school and on-the-job education.

EDUCATION AND TRAINING (CONT'D)

The student will:

6.10 Select an appropriate high school curriculum in keeping with tentative career goals.

EMPLOYABILITY AND WORK ADJUSTMENT - Students become aware of, accept and affirm that certain behaviors are expected and required for certain jobs and that these behaviors can be acquired.

The student will:

1.0 List characteristics that may have to be compromised when working cooperatively in a group.

1.1 Explain differences in responsitility when working alone compared with working as a part of a group.

1.2 Explain ways of communicating with others within a group to complete a task.

1.3 Recognize differences in responsibility when working with supervision in comparison to working without supervision.

1.4 Recognize the difference between entry level jobs and future mobility within that job cluster.

1.5 Fill out job applications.

1.6 List personal qualities, aptitudes, and interests and relate to jobs in the D.O.T.

1.7 Recognize and appreciate a job that is well done by either oneself or others.

1.8 Recognize that a job well done is rewarded by self-satisfaction as well as by recognition from others.

1.9 Give several examples of people with different interests and identify reasons to account for differences.

1.10 List experiences that cause change or modification of values and explain reasons for the need to change.

Appendix B

GETTING OFF THE GROUND

(The Program Planning Process)

Fuel Supply

A plane cannot get off the ground without fuel, and the fuel for a successful collaboration effort is a serious commitment by education and the community to apply their financial, physical, and personnel resources to complete the flight plan. If the commitment is superficial, then the collaboration will be short lived.

Finding the School Pilot

Once the decision has been made that the school system will be involved in a collaborative program of Career Development, program leadership for that effort must emerge.

An educator who can bring about change is the person to head the program. Commitment to the concepts of Career Education must also be a prime qualification for choosing that person. Training in the area of guidance and counseling provides valuable skill for the development of a Career Education program. Knowledge of curriculum and the total educational philosophy of the school system are other important assets.

If these qualifications are found in a staff member who is also active in community organizations or who has a strong work experience background, that person is a logical choice for program leadership.

School Ground Crew

A successful flight must begin with a capable ground crew working as a team. All departments of the school staff must be involved as participants in a collaborative Career Development program.

Curriculum specialists, guidance counselors, vocational educators, academic teachers, administrators, and special program leaders -- all these must identify their needs and goals which relate to Career Education and which must be responded to in the implementation of a collaborative program.

It will be helpful if these needs and goals can be jointly refined and finally determined by interaction between school people and representatives of various community sectors.

Training for Collaboration -- School Personnel

In-service training for all members of the school staff is essential. Initial training sessions must be used to develop an awareness of what Career Education is and to demonstrate that community resources must be part of a well-balanced Career Education program. After staff members have this awareness, they will be able to see their personal and departmental roles in the program.

These in-service meetings should also be used to establish the communication linkages within the school system that are needed for a successful program. Bringing in community resource persons to help in the planning and implementing of in-service sessions will enhance the possibilities for future success in collaboration.

Moving Toward Collaboration

As suggested above, prerequisites for collaboration in Career Education are that school people have an understanding of the Career Education concept and are communicating among themselves. It will also be helpful if, as previously mentioned, some lines of communication have been established with community persons through their participation in planning and implementing in-service meetings and in joint school-community determination of program needs and goals for Career Education.

Success in school-community collaboration will also depend a great deal on affirmative answers to these questions:

1. Is the school administration committed to Career Education and does it have the necessary resources -- financial, physical, and human -- to carry out a meaningful program?

2. Does the school leadership for the program have effective public relations skill?

3. Is there a good existing relationship between the local school system and the community?

Atmospheric Conditions

Collaborative efforts among business, education, industry, labor and other community sectors are not easy to accomplish nor do they occur overnight.

To establish collaboration, certain characteristics should prevail in a community. If not all of them are present, step-by-step development of collaborative programs in Career Education can help to bring them about. The proviso is that mutual respect for the viewpoints of all parties involved be displayed in each step of the collaborative process.

The following are the desirable community characteristics for successful collaboration:

pride in the school system and confidence in its administration;
students who reflect credit on the school system;
past community-wide support for the total school system and other evidence of allegiance to the community and its welfare;
confidence on the part of business, labor, industries, and other segments of the community that they have a voice in educational policy and will be listened to;
actual financial support to the schools for various efforts;
evidence that key business, labor, and other community representatives are willing to provide time for personnel to work with schools in improving educational services;
some previous experience in working together on a number of projects.

Enlisting the Co-Pilots

Initiative for collaboration may come from the schools, or it may come from one or more community organizations. It may come from both directions. Perhaps a number of community and school programs already exist and could be incorporated in a Career Education program. Each community has its own unique situation that will necessarily serve as the place to begin.

If the formal organization of a Career Education program has begun with the schools, the following suggestions may be useful in undertaking collaboration with the community:

Make direct contact with the organizations or persons that can rally the leaders of all community segments in support of Career Education. Those organizations and those persons may be different in every community. However, the Chamber of Commerce; civic clubs such as Rotary, Kiwanis, etc.; public agencies; professional associations; local government agencies; as well as individual leaders of business, labor, and industry are all possible starting points.

Inform the community leadership about what Career Education is, what it hopes to accomplish, and why the school system feels it is necessary. Convince them that it has merit and that collaboration will help to fulfill specific objectives in programs related to assisting students in school-to-work transition.

What are methods of informing the community leaders who can make decisions about participation in the program?

Personal letters can invite them to attend a special program where they will hear presentations on Career Education. Since school board members are also community leaders, they too can be invited.
Representatives of the school system can ask to speak about Career Education at meetings of community organizations to which they belong, as well as to others whose support is needed.
Educators can arrange appointments to talk to individual community leaders.
If Career Education is in operation but needs expansion, community leaders can be invited into classrooms to see demonstrations; once there, they may find themselves drawn into the activities. They may also be invited to attend and to participate in in-service meetings.

Listen attentively to the suggestions and criticisms made by the community leadership and implement their suggestions wherever possible. If schools really want community input and feel that collaboration is necessary, the school system must share decision-making power with community leaders in areas of the latter's expertise.

After obtaining the commitment of community leaders, have them select the key people in their respective organizations who will work with the schools in implementing the Career Education program. After this step, collaboration on specific informational and program activities can begin.

Training for Collaboration -- Work Sector Crew

A key factor in an effective on-going program in Career Education is training community participants for the job to be done. Steps in the process are:

developing an awareness of what Career Education is;
determining the needs and goals of their organizations for Career Education;
outlining how the work of their organizations can be related to school curriculum;
developing training programs for community participants in specific Career Education programs.

Developing the Flight Plan

Getting the flight off the ground requires that the co-pilots have an established destination and have selected the route to follow.

Together they can plan specific objectives and outline the program and activities that will take place. Close cooperation and coordination, as well as mutual sharing of responsibility must prevail.

Major educational objectives for a collaborative Career Development program are not difficult for community participants and educators to agree on. The route to be traveled is dependent on values and objectives of the various participating groups.

All expressed concerns must be responded to, but the biases must be filtered out, if the flight is to remain on course. It is at this point that meaningful collaborative programs can be developed.